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Saunders, Fiona ORCID logoORCID: <https://orcid.org/0000-0002-1644-2511>, Gellen, Sandor, Stannard, Jack, McAllister-Gibson, Colin, Simmons, Lisa and Gibson, Andy (2020) Exploring the use of teaching videos to improve educational outcomes: A cross-Faculty study. In: Advance HE Annual Teaching and Learning Conference, 07 July 2020, Virtual.

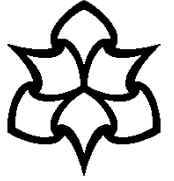
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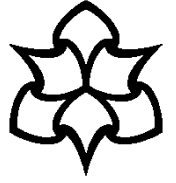
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Exploring the use of teaching videos to improve educational outcomes: A cross-faculty study

Dr Fiona Saunders, Sandor Gellen, Jack Stannard, Colin McAllister-Gibson, Dr Lisa Simmons, Professor Andy Gibson

Advance HE T&L Conference, 7th July 2020



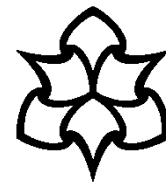
Introducing the Presenters



Dr Fiona Saunders: Faculty Head of
Education for Science and Engineering,
Manchester Metropolitan University



Sandor Gellen: Faculty Planning Officer,
Manchester Metropolitan University:



Introducing Man Met

MARCH 2019




A modern university, delivering better outcomes for students, to add value to businesses, the economy and society


38,000
students
6th in the UK


7th
most popular university
by applications
(UCAS)


112
more than half of new
students have 112 tariff
points, equivalent to BBC
at A level (UCAS)


52%
of our students are the
first generation of their
family to attend university


1st
for degree
apprenticeships
1300 degree apprentices
by summer 2019


233
employers partnering with us
on degree apprenticeships
including 75 SMEs


Top 5
for Knowledge
Transfer Partnerships
currently working with
31 SMEs (Innovate UK)


968
primary and secondary
school teachers graduate
from us each year
6th in the UK


UK's largest
community of academic and student
creative writers, including Poet
Laureate Dame Carol Ann Duffy,
and more than 85 published authors


Top 10
ranked globally
Manchester School of Architecture
(QS World Ranking by subjects)

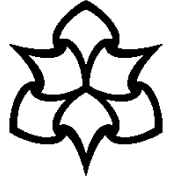

**The UK's
greenest
university**
(People and Planet University
League 2017)


**Anchor institution
in Manchester**
significant partner in the
Greater Manchester regional
strategy – digital, health, skills,
age friendly, green economy


**Institute of
Coding**
Founding member
Driving diversity and inclusion
in the digital industries


**Student
Mental Health**
a partner in Greater
Manchester student GP
passport programme


**Over
£400M
invested**
School of Digital Arts and Manchester
Poetry Library: flagship developments
to support the creative industries



Project Overview



Faculty wide project to support retention and progression of 6000 UG and PGT students



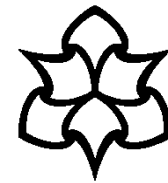
Over 2000 videos produced since 2017



Short explainers, past exam solutions, coursework briefings, lab demos

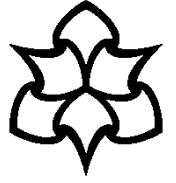


Positive anecdotal feedback from staff and students



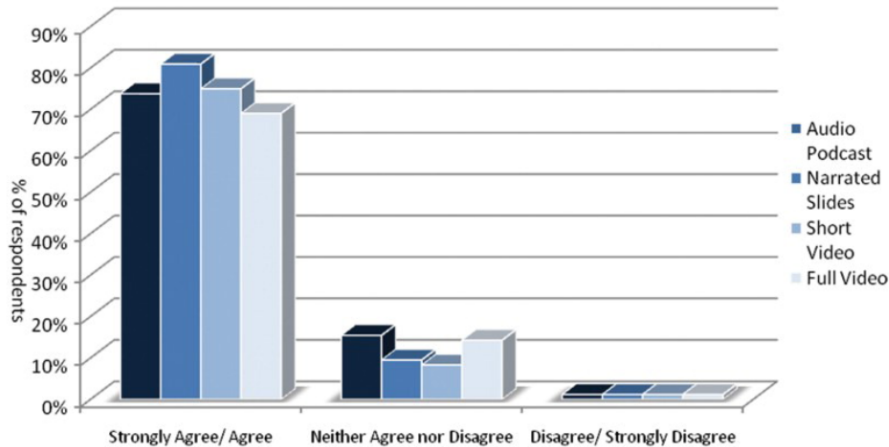
2016/2017
L4/L5 Progression
80% against
target of 85%

2016/2017
Good Honours
65% against
target of 80%



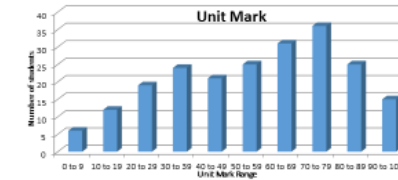
Underpinning Theory and Ideas

The rich-media tools aided or added to my understanding of the topics they covered (Qu13, 18,23,28)

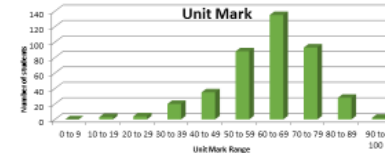


Source: Saunders and Hutt, 2014

Video Support



Without
Video
Support



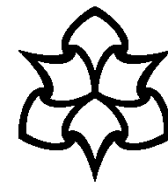
With
Video
Support
(420 students,
100% progression)

Source: UoM, Unit Performance Electrical Energy Supply and Circuits 1 2014/2015

technology and learning experience more explicit, still stating that

... technology is an engaging and highly responsive medium; it can gather content according to interest; it can respond to individual needs of pace and level; it fits with the style and forms of youth culture; it can link the classroom to the workplace and in doing so allows teachers to provide much more of what only they can do for their students (Laurillard, 2007).

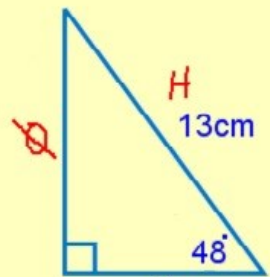
Educating the Netflix Generation



MathsWatch

SOH CAH TOA

Find side x



A right-angled triangle with a vertical side labeled 'H' and '13cm', a horizontal side labeled 'x' and 'A', and a hypotenuse labeled '13cm'. The angle between the vertical side and the hypotenuse is '48°'. A small square at the vertex between the vertical and horizontal sides indicates a right angle. A handwritten 'Q' is next to the vertical side.

$$\cos 48 = \frac{A}{H}$$
$$\cos 48 = \frac{x}{13}$$
$$13 \times \cos 48 = x$$
$$x = 8.7$$

01:19 / 07:11

BBC News | Sport | Weather | iPlayer | TV | Radio | More | Search

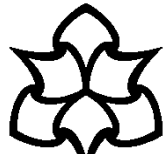
KS2 Bitesize

Home English Maths Science

English Maths Science

YouTube

What do the videos cover?



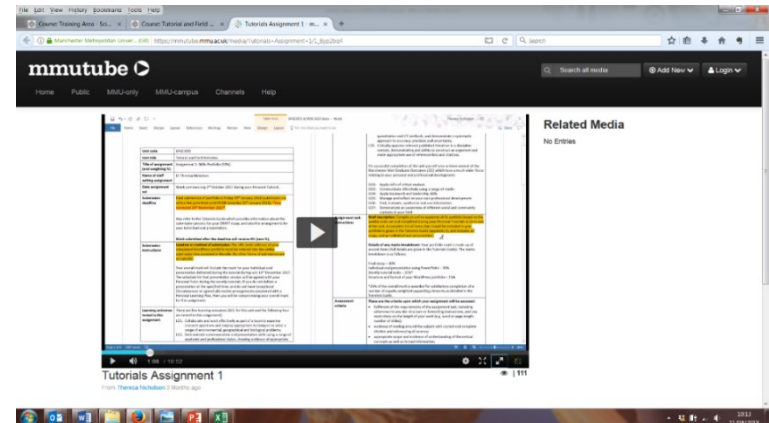
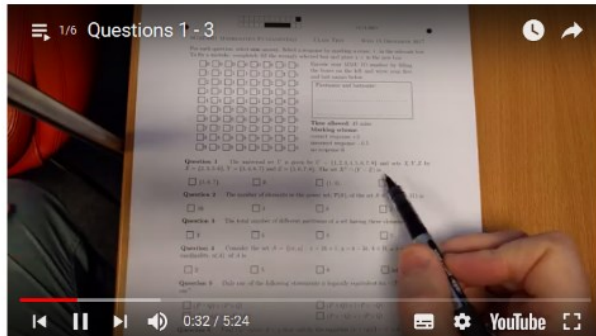
- revision tips
- exam paper explanations
- coursework guidance
- coursework feedback
- solutions to tutorial problems
- core concept videos

Particle Animations (explained)



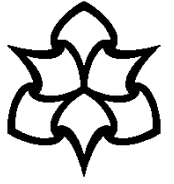
Class test information from term 1

The playlist below contains videos discussing the solutions to the questions from the MCQ in-class test from December 2017.

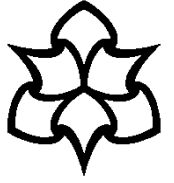


Source: MMUTube on Moodle

Below is a link to a copy of the test with the correct responses indicated.



**Do the videos
improve student
performance?**



Our study

1.
Research
Design

2.
Dataset
and
Analysis

3. Findings



1. Research Design

Faculty wide project to support retention and progression – 2000 videos produced since 2017, 81% of units now have video support

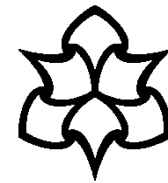
Research Aim: Investigate whether students' level of engagement with videos impacted academic performance

Quantitative Research Design: Data 8 units across the Faculty (4 first year and 4 second year units)

Regression Analyses (Multiple Regression & Logistic Regression)

Outcome variable - final unit marks **Independent variable of interest** – level of engagement with videos

2. Data Set



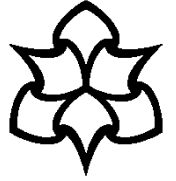
8 units L4/L5
from 2018/2019
Each unit >80
students and >5
videos available

Total sample
size 1442
students

Excluded 30 P/T
students and
164 students
who did not
engage with any
VLE material

Final sample size
1248 students

3. Key Findings



Linear regression – unit performance v's video views

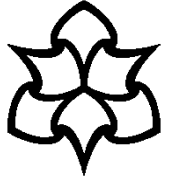
Model included the following predictors: video view, level of study, disability, first generation, age, entry qualification, clearing, commuting, multiple deprivation and ethnicity

Entry qualification ($b = .725, p < .001$) and ethnicity ($b = .311, p < .001$) are strongest predictors of unit mark

Model produced
 $R^2 = .186, F(11, 784) = 17.51, p < .001$

Adjusted R^2 indicates that 18.6% of the variance in unit mark is explained by those predictors

Video engagement also significant predictor of unit mark ($b = .110, p < .001$),

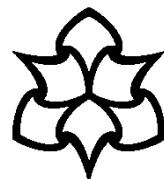


**Logistic regression – view/no view against
pass/fail, above 60% and above 70%**

Viewing at least one video significantly
improves the likelihood of getting a mark
above 60%

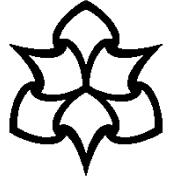
Even stronger predictor
of getting a 1st class
mark

But it does NOT predict
failure (below 40)
significantly



Predicted First (70 or above)

GENDER	Entry Quals	Ethnicity	Viewed?	Success	Failure	Total	p-Obs	p-Pred
Female	Vocational	BAME	No	0	8	8	0%	4%
Male	Vocational	BAME	No	0	21	21	0%	6%
Female	Vocational	White	No	0	2	2	0%	7%
Female	Academic	BAME	No	4	7	11	36%	10%
Male	Vocational	White	No	0	5	5	0%	11%
Female	Vocational	BAME	Yes	8	92	100	8%	12%
Male	Academic	BAME	No	1	18	19	5%	16%
Female	Academic	White	No	3	10	13	23%	18%
Male	Vocational	BAME	Yes	31	119	150	21%	19%
Female	Vocational	White	Yes	3	25	28	11%	21%
Male	Academic	White	No	6	13	19	32%	27%
Female	Academic	BAME	Yes	41	95	136	30%	29%
Male	Vocational	White	Yes	44	79	123	36%	31%
Male	Academic	BAME	Yes	63	92	155	41%	41%
Female	Academic	White	Yes	55	66	121	45%	44%
Male	Academic	White	Yes	96	84	180	53%	57%



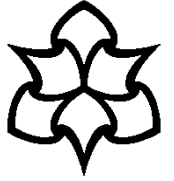
Implications for Practice

Student feedback on the videos has been consistently positive (in line with earlier studies (Schmid et al., 2014, Stockwell et al., 2015 and Taslibeyaz et al. (2017))

Our primary contribution is to show a direct correlation between viewing videos and unit performance

Although effect size was small, video view was the only significant contributor to improved unit performance besides entry qualification and ethnicity

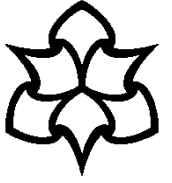
The impact of the videos on student performance is most pronounced at the 60% mark (important given current sector focus on teaching metrics: e.g good honours)



Take Away Message



Producing videos offers educators alternative ways of explaining concepts, practising worked examples and preparing students for assessment, which we have shown can lead to improved unit performance.



Tips and Tricks for Implementing Video

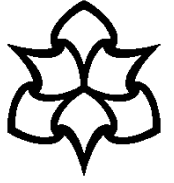
An engaged and proactive senior sponsor

Responsive, experienced and proactive e-Learning technologists

Make friends with them

Start small and build resources incrementally

Make it easy for academic teams to generate video resources and hard for them not to.



Thanks for watching



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